Remarks by the Honorable Frederick Gregory
NASA Deputy Administrator
Engineering and Construction
Contracting Association
Orlando, Florida
September 8, 2005

Thank you Dwayne (Dwayne Wilson, Fluor/Daniel Corp., Chair of Conference) for that generous introduction and good morning ladies and gentlemen.

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And I do hope to impart today from NASA's plans some useful ideas about our mutual interest in innovation and about how your community might face the challenges and opportunities of the future.

But first, as we have learned from Hurricane Katrina and its aftermath, sometimes the shocks we envision do not lie ahead in the far future.

Sometimes they can come in a matter of hours and days with the gusts of the most elemental forms of nature, and damage our people and economy in ways beyond imagining.

For those of you who have personally experienced the devastation of Hurricane Katrina, my heart goes out to you.

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As the President said, because of the enormous magnitude of this natural disaster, the recovery may take a matter of years, not just months. Your industry will be relied upon to do much of the recovery work, and looking at the faces in this hall I'm confident you will be up to the challenge.

To be sure, this will be no simple task. The challenge of rebuilding New Orleans and the Gulf Coast area is a very complicated one with huge issues involving capital, logistics and human resources.

I would submit, though, that even under normal circumstances in the future, the engineering and construction management community would face fairly significant challenges of this nature.

Thus, the intended purpose of this conference has even greater relevance that you might have imagined a few weeks ago.

I might add that NASA faces these challenges as well as we ponder the challenge of implementing our long term exploration agenda.

Let me introduce, for example, one complicating factor both NASA and your community face in the management of our human resources.

With one-fourth of NASA scientific and engineering workforce facing retirement within the next five years, we are literally facing a work force crisis.

These are the folks not only responsible for some incredible scientific and exploration achievements, but also hold in their minds tremendous institutional knowledge.

We will try to capture this institutional memory as best we can as we train a new generation of NASA scientists, engineers and managers, but we know this will be an imperfect process. Many of you can say the same thing about your organizations.

But first, we have to attract that new generation. While employment opportunities in science and engineering are expected to increase at a rate almost four times greater than for all other occupations throughout this decade, it is an alarming fact that enrollment in science and engineering college courses has been in decline.

This trend has broader national implications as well, implications that should particularly interest this audience.

A report by the National Science Board says the nation is losing "a long-distance race" to maintain its edge in human scientific resources.

The Board pointed out that the U.S. ranks 17th among nations surveyed in the share of 18 to 24 year-olds who earn natural science and engineering degrees, trailing Taiwan, South Korea, Italy and Ireland.

As much as we are currently focused on the immediate problems of our time, we at NASA are convinced a regeneration of our nation's commitment to the bold spirit of exploration and discovery will help reverse this trend. Even in times of despair and uncertainty, we must look forward.

And the space program is the most forward looking agency of government that exists.

We know from the Apollo program that NASA’s ability to inspire that next generation to study math and science and consider technical careers can have a great impact on developing our nation’s scientific and engineering talent pool.

So as we move ahead with initial activities to implement our long-term exploration strategy to explore the moon, Mars and beyond, we're putting a lot of effort in reaching out to our next generation of explorers, with projects like NASA's Explorer Schools, a commitment of the agency to bring the excitement of our missions and science activities into demographically diverse elementary, middle and high schools around the country.

Thus, in reaching for the stars, we hope to sow seeds of hope and inspiration.

Let me now discuss our exploration strategy in greater detail, a strategy we call the Vision for Space Exploration.

In January 2004, President Bush directed NASA to pursue a bold exploration agenda involving robotic pathfinders and astronaut pioneers that promises to enhance America’s scientific, economic and security interests.

The Vision calls on NASA to return humans to the moon within the next decade with a new generation of spacecraft, and prepare the way for pioneering exploration activities on Mars and beyond.

I'd now like to show you a brief video that highlights the elements of our Vision for Space Exploration and the work that NASA will conduct to achieve these exploration objectives.

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I think what's most satisfying for people like me who have long wanted our space program to be reaching ever outward, is that the Vision gives NASA and our space exploration partners in many nations a set of long-term goals that are compelling, achievable and responsible.

To sum up where we are headed, we will implement our space exploration agenda in achievable and affordable stages, in line with our current budget, which is less than one percent of federal expenditures.

Our next milestone is the second return to flight mission of the Space Shuttle, designated STS-121. This flight will take place once we have solved the problem of foam loss from the Shuttle's External Tank.

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And we are definitely in need of your innovative ideas. You can imagine the challenges we will face—setting up habitability modules and power plants, utilizing lunar soil to provide radiation shielding, and mining lunar materials for fuel.

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In a broader sense, we're confident that our work to implement this Vision will spur technological developments leading to new products and services.

Indeed, just as Project Apollo led to important advances in computing and electronics, the potential spin-off benefits from this bold exploration program could prove considerable.

We anticipate that the overall technology development necessary to implement the Vision will accelerate advances in robotics, autonomous and fault tolerant systems, human-machine interface, materials, life support systems and novel applications of

nanotechnology as well as micro devices. All of these technologies

If history is any guide, these and other technologies we develop in partnership with our industry teams will have a tremendous impact on society in numerous unanticipated ways.

Many of the technologies that result from this activity may well find great use in the engineering and construction management field.

Finally, I'd like to tell you why I'm so excited about NASA's new direction in very personal terms. (**SLIDE 5: FRED GREGORY SHUTTLE MISSIONS)**

When my fellow astronauts and I suited up for our Shuttle missions, we knew that we were assuming a degree of risk much greater than one's ordinary commute to work. But we did so willingly because the potential reward was great.

Now that we have learned to live and work in low Earth orbit, it is time to take on greater challenges that will extend our exploration horizons, help us answer profound questions about our place in the Universe and spur tremendous innovation here at home.

These past three years I have gone around the country expressing my heartfelt view that we conduct a space program so grand in its ambitions that my very bright and talented granddaughter Caitlin would obtain the same level of excitement so many of us had in our youth when men landed on the moon.

Thanks to our Vision for Space Exploration, her excitement level knows no bounds.

Yes, our country has huge problems, some of which were not high on our agenda a few weeks ago. But great nations do not, must not halt when the going gets tough.

We know from history that those nations that are able to sustain a commitment to extend the boundaries of exploration and discovery have a decisive role in shaping the destiny of human civilization.

Our expansion into space is a continuation of the ancient human imperative to explore and to settle new territory when it becomes possible to do so.

I hope that many of you will be involved in the adventures to come when we set out to expand our engineering and construction as well as exploration horizons on the near shores of the space frontier.

Once again I thank you for your tremendous hospitality and for your interest in what NASA is doing on behalf of the public. Thank you very much.

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